Greater Rubicon Area Transportation Strategy

Stewart Street Design Plan

INTERSECTION OF STEWART STREET AND BROWN STREET

The Brown and Stewart intersection, while internal to the Rubicon area, serves as an important gateway to the University of Dayton campus. In this area, the existing roadway geometry is insufficient to handle the increase in traffic capacity that has occurred. A significant problem witnessed while traveling this section of the corridor is the lack of a middle turn lane. Introducing gateway design elements including alternative paving patterns, consistent with the UD Master Plan, will help to reinforce the signage and entry treatments already at the campus entrance drive.

Main Street Plan

Brown Street Pedestrian Plan

CREATING SPACES

Several improvements have been proposed for the Brown/ Warren Street corridor to build on recent changes to the area. The improvements are intended to make the corridor more inviting for pedestrians while helping create a unique sense of place.

- Reducing the number of driving lanes calms traffic, increases the pedestrian zone, and shortens crossing distances
- Mid-block refuge islands provide pedestrians with safer options to negotiate two-way traffic while crossing
- Street trees and median landscaping create a more pedestrian scale environment and help to make the pedestrian zone more inviting
- Use "build to" lines to maintain a more urban pattern and enlivened development
- Develop streetscape design guidelines for unified seating, lighting, signage, etc., to shape the character of the corridor while allowing for individual identity and branding
- Eliminate unnecessary access points to reduce vehicular/pedestrian conflicts
- Evaluate cost/benefits for reducing visual clutter by relocating certain overhead lines underground

US-35 GATEWAY CONCEPT

Patterson Boulevard, as it approaches and crosses under US-35, is an important gateway to the Rubicon area, but today it is dominated by concrete columns and uninteresting open spaces. Gateway treatments can be provided that will help to create a sense of arrival for motorists traveling south. Improvements may include replacing asphalt under the overpass and in painted medians with an alternative pavement, adding additional landscape material to frame the underpass and create seasonal interest, placing banners and/or hanging pots that provide visual cues and frame views. Improvements to the overpass itself, from simply repainting to a more decorative façade treatment, will help transform the space into an entry portal for the Rubicon area.

Patterson Boulevard Plan

PATTERSON BOULEVARD PERSPECTIVE

Visual Character

STREETSCAPE DESIGN ELEMENTS

Streetscape design elements can be used to unify the Rubicon area while providing opportunities to reinforce the diverse uses and activities that co-exist. Streetscape design elements are recommended along each of the major street corridors. Streetscape design elements may include:

- Street trees
- Planting strips
- Benches
- Trash receptacles
- Transit shelters unique to the area
- Ornamental lighting and signal fixtures
- Signage

Signage may come in the form of unique community markers such as banners depicting key elements or community identifiers along each corridor. Major destinations can be further incorporated into the streetscape design with wayfinding banners placed prior to key decision points for both drivers and pedestrians.

Streetscape design elements will have to be located within the public Rights-of Way as well as the "public realm" associated with private property. Specific guidelines should be developed that establish what streetscape elements are appropriate, who's responsible for providing them, as well as their style and placement. The Streetscape Design Guidelines could then be used to assist the City in reviewing all future redevelopment projects within the study area.

GATEWAY TREATMENTS

Gateway treatments create visual cues to signal the arrival or departure from the Rubicon area and help to set the tone for the streetscape environment. Gateway treatments have been proposed at Patterson/SR-35 and Warren/SR-35 where the expanse of roadway infrastructure and lack of defined development patterns diminishes all 'sense of place'. Typical elements of an urban gateway may include:

- Community identity markers or signage
- Unique landscape treatment
- Alternate paving materials
- Focal elements such as sculpture or other public art

A detailed design for each gateway to establish specific treatments is recommended. Provisions for enhanced landscaping and streetscape elements adjacent to the ROW of Patterson, Main, Brown/Warren, Stewart, and Wyoming will help establish the entire corridor as a gateway.

VISION AND PURPOSE

The Rubicon Study area serves a diverse group of people, businesses and agencies, and has been included in many completed or on-going planning efforts. As a result, the area stakeholders have acknowledged the need for a ***comprehensive transportation program to link the plans together*** *and capitalize on the vast opportunities available for the area users.*

Objective 2

In Objective 1, the purpose of the roads was explored. Under this plan, Brown Street would become more pedestrian friendly and supportive of the Business District whereas Main Street and Patterson Boulevard would take traffic from Brown Street and be considered major north-south thoroughfares. Because of their different roles, each corridor needs to have a unique character reflective of the users as well as the major land uses along the corridor. The plan views and graphics for the visual character of the four corridors are illustrated here.

Recommendation Map

Legend

- Study Corridors
- Recommended Green Spaces
- Recommended Added Roadway
- Recommended Removed Roadway

"A" CYCLIST
- Existing In-Corridor Bikeways
- Proposed In-Corridor Bikeways

"B" CYCLIST
- Existing Off-Street Bikeways
- Proposed Off-Street Bikeways

Street Function

1 STEWART STREET

- Major East/West travel corridor
- High pedestrian crossing traffic
- No bicycle provisions east of Brown St.

- Dedicated bicycle lanes east of Brown to provide for east/west commuter bike route
- Improved pedestrian crossing at major intersections
- Enhanced landscape & streetscape elements at edge of ROW to create "Gateway"

2 MAIN STREET

- Major North/South travel corridor
- Provides access to Miami Valley Hospital and Fairgrounds
- 4 lanes, but with few turn lanes, functions as a two lane road

- Addition of 5th center turn lane to increase capacity
- Enhanced landscape & streetscape elements at edge of ROW to create "Gateway"

3 WARREN STREET: THE GREAT DIVIDE

Brown Street noticeably changes as it approaches Warren Street. Recent redevelopment has helped define this corridor's character, but north of Wyoming unnecessary access points, vacant lots and minimal reinvestment leave that area wanting.

Expansion plans for MVH and the recent demolition of the Cliburn Manor Public Housing has created an opportunity to significantly improve this area.

Converting Brown/Warren into a divided boulevard will:

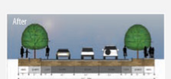
- Re-define the character for this section of the corridor
- Provide a more appropriate transition to the corridor for the South Park neighborhood
- Encourage a vibrant mix of uses fronting Brown/Warren
- Improve bike and pedestrian facilities

4 PATTERSON BOULEVARD

- High volume, important north/south travel corridor
- 6 lanes with median, south of RR overpass
- 4-6 lanes without median north of overpass
- Pedestrian crossings occurring at unmarked locations

- Strengthen "boulevard" image by extending landscape median to Ludlow
- Loss of 1 southbound lane from Stout south to overpass
- Improved pedestrian crossings at major intersections
- Enhanced landscape & streetscape elements at edge of ROW to create "Gateway"

5 BROWN STREET



- Important mixed use corridor linking varying users and neighborhoods
- 4 lanes (2 travel lanes with intermittent on-street parking)
- Heavy transit use
- High volumes of pedestrian traffic
- No bicycle provisions

- "Road Diet" to 3 lanes allows for better turning movements
- Dedicated bicycle lanes to provide for north/south commuter bike route
- Improved pedestrian crossings at major intersections and key mid-blocks
- Loss of on-street parking requires improvement to off-street parking options
- Enhanced landscape & streetscape elements at edge of ROW to create "Gateway"

Objective 1

The purpose of this portion of the study was to assess the traffic flow and safety of the corridors in order to recommend specific plans to improve pedestrian flow along Brown Street while allowing Main Street and Patterson Boulevard to serve as the study area's major thoroughfares. Additionally, the plan needs to address moving east-west traffic off of residential streets onto more appropriate corridors such as Stewart and Wyoming Streets. Inherent in this process is the traffic impacts that may occur due to all the proposed changes for this area and the need to improve parking opportunities within the Brown Street Corridor.

Overall crash numbers were low with few areas exhibiting a pattern of crashes. New typical sections were developed for each corridor in order to meet the stated objectives. These new sections allow for the corridors to function better in their new roles while allowing for ample access to new uses.

Alternate Transit

Objective 3

The vision of the Rubicon area is one in which all modes of transportation are integrated safely and appropriately as dictated by the primary uses of the corridor. A primary goal of the study is to improve pedestrian flow from the campus, along Brown Street and to Miami Valley Hospital. Improved, wider sidewalks along Brown and Main Streets accomplish this goal as do raised islands in the center of the streets, textured crosswalks and improved transit amenities. Bicycle travel is very important within the study area for cyclists of all abilities, whether it's those who bike as their primary form of transportation or those who ride for recreation. Facilities have been developed to address the needs all cyclists.

Access to safe and efficient transit within the study area was also a priority. This plan addresses types of transit amenities to include in the area that would encourage the use of this mode. Finally, the streetcar and trolley systems are very much a part of the City's identity and all plans have been prepared so that these systems are integrated into the recommendations.

TRANSIT FACILITIES

The Greater Dayton Regional Transit Authority (GDRTA) operates ten (10) fixed routes within the project area, a senior service route (Route 66) that operates Monday and Wednesday serving Miami Valley Hospital, and complementary curb-to-curb service for individuals with disabilities.

Transit operations should be considered in terms of efficiency and effectiveness. Bus pull offs should be considered in very high volume single lane situations, especially when high levels of bus boardings are expected. In low volume areas, an occasional bus can serve to calm traffic.

Recommendations for the quality integration of local public transit would include:

- Low-maintenance passenger amenities (e.g., shelters, access to transit information, restrooms, bike racks, etc.) unique to the study area to improve passenger comfort while providing opportunities for promoting neighborhood/campus identity
- Transit facilities that visually relate to the context of the project area
- Project elements that provide places of refuge, interest and information for transit users
- Spines that connect transit stops with neighborhoods
- Sidewalks and well-marked crosswalks

All GDRTA buses have year-round bike racks encouraging the development of intermodal connections between the modes of travel within the design area along with bike storage and parking and key transit stops.

Within the study area, GDRTA has Electric Trolleybus infrastructure that must be considered in any changes to the current street/ intersection alignments. The cost of relocation of ETB infrastructure is estimated at $1 million per one-way mile.

The design should allow for the integration of the proposed streetcar in terms of infrastructure and operations. The current streetcar plan is for a two-way single track operation along Patterson, Warren and Brown Streets with terminus at the Third & Main GDRTA Hub on the north end and on Caldwell Street at the south end. The streetcar will share lanes with motor vehicular traffic, serving to slow traffic flows and/or encourage non-transit motor vehicles to choose an alternative route.

PEDESTRIAN FACILITIES

Providing a safe, pleasant experience for pedestrians is an important study goal. There is a high volume of pedestrian traffic throughout the study particularly along and across Brown and Stewart Streets were a number of conflicts exist with vehicular traffic. Several of the proposed roadway corridor recommendations are intended to improve pedestrian safety and encourage more pedestrian trips. The improvements include:

- Reduced number of travel lanes and curb extensions at intersections that shorten pedestrian crossing distances
- Bike lanes and on-street parking (limited) that provide a physical separation between pedestrian and vehicular traffic
- Wider sidewalks/pedestrian zones to accommodate higher pedestrian volumes and create opportunities for streetscape amenities (seating, street trees, etc.) that improve the pedestrian experience and comfort
- Mid-block crossings to improve pedestrian safety

BICYCLE FACILITIES

The MVRPC identified a potential network of corridors where new bicycle facilities could be added to enhance cyclist safety and accommodation. Approximately 100 specific projects were identified as "high priority" including rehabilitation of the U.S. 35 bicycle/pedestrian bridge between downtown Dayton and South Park. 20 "high priority" projects were selected as "Top-Priority" projects including the construction of the "SE Corridor" Trail between Kettering and downtown Dayton that extends through the Rubicon area.

The proposed bicycle facility recommendations build on the MVRPC facilities associated with the SE Corridor Trail with an added emphasis on connecting the network to the river.

Proposed dedicated bike lanes on Brown/Warren Street and Stewart Street(in-corridor facilities) will:

- Serve to establish north-south and east-west links for commuter bike travel
- Be used by "A" cyclists and confident "B" cyclists
- Serve as traffic calming devices effectively reducing travel speeds and improving conditions for the pedestrian

The off-street facilities proposed will:

- Serve as an alternative route for "B" and "C" cyclists
- Create a network that would promote bicycle travel by less experienced riders
- Help reduce vehicular trips, particularly those of 3 miles or less

"A" CYCLIST Experienced rider, may ride to commute; is comfortable on the roadway and understands traffic rules. Would most likely use "in-corridor" facilities (dedicated bike lanes).

"B" CYCLIST Less experienced rider, often biking for recreation or shorter trips; may not be comfortable riding with traffic; has some understanding of traffic rules. Would likely use both "in-corridor" and "off-street" facilities depending on experience and comfort level.

"C" CYCLIST Child rider. Least experienced, may have no understanding of traffic rules. Would likely use "off-street" facilities except for local streets and/or accompanied by a more experienced rider.

Objective Overview

Objective 1
STREET FUNCTION, TRAFFIC ASSIGNMENTS, CAPACITY AND CLARITY

- Brown Street Plan w/bike and pedestrian provisions
- Main Street and Patterson Boulevard Thoroughfare Plans
- Impacts of New Uses (US Center for the Arts, Miami Valley) - Hospital Expansions, Fairgrounds reconfiguration) on Traffic Movement
- Improve East/West Accessibility via Stewart and Wyoming Streets
- Isolate Inappropriate Traffic from Residential Neighborhoods

Objective 2
VISUAL CHARACTER BY CORRIDOR

- Brown Street Pedestrian Plan
- Patterson Boulevard and Main Street Gateway Plans
- Stewart Street Design Plan

Objective 3
INTEGRATED MULTI-MODAL TRANSPORTATION IN THE PLANNING AREA

- Brown/Warren Street Corridor Pedestrian Enhancements
- Integrate Regional and Local Bike Route and Address Physical Requirements
- Enhance Transit Use
- Integrate Streetcar/Trolley

Study Area and Issues

STAKEHOLDERS MEETING

The study initiated with a three-day charette at a store front at the corner of Brown and Stewart Streets. An initial stakeholders' meeting was held which included an issues exercise. The stakeholders were broken into four groups and maps of approximately a fourth of the study area were passed among the groups so that concerns and opportunities could be discussed. These thoughts were captured and served as a starting point for many field observations.

SPECIFIC STAKEHOLDER ISSUES

1. Main Street needs to be able to handle more capacity
2. Patterson corridor character changes drastically north of Stewart Street
3. Lack of striping causes confusion at intersection of Patterson and Main
4. No feeling of gateway, greeted with underbelly of US-35
5. The riverfront could potentially be a great source of opportunity, but it lacks connections
6. Railroad bridge could be utilized as pedestrian/bicycle connection
7. Need to preserve the many faces of Brown/Warren Street
8. Multi-use path does not extend east beyond Brown Street
9. Need more defined east/west connections while minimizing residential cut-through traffic
10. Brown/Warren Street north of Wyoming suffers from lack of visual character and numerous access management issues

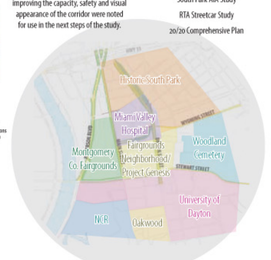
High volume of pedestrians and jaywalking

FIELD REVIEW

Two days of field reviews were used to verify issues identified by the stakeholders as well as to understand crash data received from the City. Possible solutions to the issues, countermeasures for the crashes and other potential opportunities for improving the capacity, safety and visual appearance of the corridor were noted for use in the next steps of the study.

RELATED PLANS

- UD Campus Master Plan
- Miami Valley Hospital Campus Master Plan
- Rubicon Park Master Plan
- Southeast Bikeway Connector (MVRPC)
- South Park AIA Study
- RTA Streetcar Study
- 20/20 Comprehensive Plan



Adopted by City Plan Board November 17, 2009
Adopted by City Commission May 5, 2010; Resolution #5749-10

GRESHAM SMITH AND PARTNERS

Recommendations and Cost

OBJECTIVES	Study	Schematic Design	Final Design	Construction	Sign Implementation	Re-striping	Signal Improvement	Priority
OBJECTIVE 1 – STREET FUNCTION, TRAFFIC ASSIGNMENTS, CAPACITY AND CLARITY								
Brown Street Plan: North of Stewart	–	$$	$$$	$$$$$	–	–	–	Short-Term
Brown Street Plan: South of Stewart	–	$$	$$$	$$$$$	–	–	–	Short-Term
Brown Street Plan: Two-Way "Great Divide"	–	$$	$$$	$$$$$	–	–	–	Mid-Term
Brown Street Plan: Parking Study	$	–	–	–	$	–	–	Short-Term
Main Street Thoroughfare Plan	–	$$	$$$	$$$$$	–	–	–	Mid-Term
Patterson Boulevard Thoroughfare Plan	–	$$	$$$	$$$$$	–	–	–	Mid-Term
Stewart Street: East of Brown Street	–	–	–	–	–	$	$	Short-Term
Stewart Street: Realignment at Brown Street	–	$$	$$$	$$$$$	–	–	–	Mid-Term
Wyoming Realignment	$	$$	$$$	$$$$$	-	$	$	Long-Term
OBJECTIVE 2 – VISUAL CHARACTER BY CORRIDOR								
Brown Street Pedestrian Plan	–	–	$$$	$$$$$	–	–	–	Short-Term
Patterson Boulevard Gateway Plan	–	–	$$$	$$$$$	–	–	–	Short-Term
Main Street Gateway Plan	–	–	$$$	$$$$$	–	–	–	Short-Term
Stewart Street Design Plan	–	–	$$$	$$$$$	–	–	–	Short-Term
OBJECTIVE 3 – INTEGRATED MULTI-MODAL TRANSPORTATION IN THE PLANNING AREA								
Brown/Warren Street Corridor Pedestrian Enhancements	–	–	$$$	$$$$	–	–	–	Short-Term
Integrate Regional and Local Bike Route and Address Physical Requirements	–	–	$$	$$$	–	–	–	Short-Term
Enhance Transit Use	–	–	$$	$$$	–	–	–	Short-Term
Integrate Streetcar/Trolley	–	–	$	$$$$$	–	–	–	Long-Term

COST LEGEND

$: < $15,000
$$: $15,000 - $50,000
$$$: $50,000 - $150,000
$$$$: $150,000 - $300,000
$$$$$: > $300,000

PRIORITY LEGEND

Short-Term: 0 -2 Years
Mid-Term: 2 Years - 5 Years
Long-Term: More Than 5 Years